

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PROTECTIVE TARP WITH ANCHORS

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Protective Tarp with Anchors
(Attorney Docket No. PNG-101A)

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to protective tarps for covering a mass, especially masses located outdoors. More specifically, it relates to protective tarps with anchors formed of tank compartments, which may be filled with fluent material. In preferred embodiment, the tank compartment anchors are integrally formed with the tarp sheet material.

2. Information Disclosure Statement

The following patents are exemplary of the prior art relating to tarps:

U.S. Patent No. 4,455,790 describes a tarpaulin anchoring system for retaining a tarpaulin on a pile of stored grain or other granular

material that comprises of a plurality of anchors embedded in the pile.

Each anchor has an attachment element protruding upwardly from the pile, with the attachment element being connected to a fastener affixed to the underside of the tarpaulin. The anchors are placed in the grain pile, throughout the area covered by the tarpaulin, as required to retain it in place. The anchors themselves may be of a screw or auger type which can be driven into an existing grain pile and attached to a tarpaulin as it is spread over the pile. In the case where a tarp is suspended above a grain storage area prior to formation of the grain pile, the anchors may be discs or plates attached to the underside of the tarpaulin by ropes; the anchors are buried in the pile when formed.

U.S. Patent No. 5,176,421 describes a cover system for an automobile which includes a flexible cover, preferably of nylon, having leading, tailing and side edge portions and of a suitable dimension to fit over the entire car body from rear bumper to the front bumper and sides thereof. The flexible cover includes an elastic leader segment attached at

a first end to the cover and spaced from the trailing edge thereof. A second end of the leader segment is attached to a rotatable spool housed in a containment tube. The spool is rotated for storing in the cover by a motor, by a spring-biased shaft arrangement or by a manually turnable crank or combinations thereof. The containment tube may be pivotally swung outwardly from the trunk to an operable position at the rear of the trunk lid. After the cover is applied to the automobile, the containment tube is swung back to the trunk compartment for safe storage.

U.S. Patent No. 5,579,794 describes a method for shielding, anchoring and containing an object such as a trailer or motor home in gale-force winds. A wind-permeable perforate sheet extends downwardly and outwardly from the top of the object or the roof of a home at an acute angle so as to surround a substantial portion of each of the sides with an inclined wind-permeable planar surface. The sheet is anchored to helical ground anchors via mechanical attachments which may also be used to tighten the sheet over the object or home. Apparatus

for shielding, anchoring and containing an object such as a trailer of motor home in gale-force winds is also disclosed.

Notwithstanding the prior art, the present invention is neither taught nor rendered obvious thereby.

SUMMARY OF THE INVENTION

The present invention is directed to a protective tarp for covering a mass, which includes of a flat, flexible sheet material having a top and a bottom and having a peripheral edge, e.g. a plurality of edges. Along the peripheral edge or along each of at least two of the plurality of edges, there is a plurality of tank compartment anchors that have at least one fill orifice and closure means for the fill orifice. The plurality of tank compartment anchors are hollow, flexible tank compartment anchors, and, in preferred embodiments, the tank compartment anchors and sheet material are formed of the same material. In some embodiments, the sheet material is rectangular from a top view and has four edges, the four edges being two sets of two opposite edges. There are at least two edges

opposite one another which contain a plurality of tank compartment anchors.

In other embodiments, the present invention protective tarp is a continuous tarp of substantial predetermined length having a central area away from the edges, and having a plurality of central tank compartment anchors located at the central area. The central tank compartment anchors are preferably aligned in a row at a right angle to an edge.

On yet other embodiments, there are a plurality of groups of central tank compartment anchors, each group being located at the central area at disparate sections. Each group of the plurality of groups of central tank compartment anchors may be located equidistant from one another. At least a portion of the central tank compartment anchors may be arranged in pairs so that the tarp may be cut between the pairs to create multiple tarps with tank compartment anchors along all edges of each of the cut tarps.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention should be more fully understood when the specification herein is taken in conjunction with the drawings appended hereto wherein:

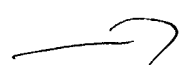
DETAILED DESCRIPTION OF THE PRESENT INVENTION

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Figure 1 illustrates a present and view of a present invention protective tarp with anchors. Thus, protective tarp 1 has a central portion 3 formed of flexible sheet material and has edges 5,7,9, and 11. Edges 5 and 7 form one opposite set of edged and edges 9 and 11 form a second set of opposite edges. At edges 9 and 11 respectively are tank compartment anchors 13 and 15. They each include fill orifices cover by fill caps 17 and 19. These tank compartment anchors 13 and 15 are, in this embodiment, formed of the same flexible sheet material as central portion 3. In this case, both are formed of plastic coated woven

material and the anchors are heat welded. The fill orifices are located on sides of the anchors a little distance from the top to assure that when they are filled, there is adequate airspace to accommodate thermal expansion and contraction during freeze and thaw cycles. The anchoring fill material may be any fluent material in liquid or solid form, such as water, sand, propylene glycol or a sand/propylene glycol mixture.

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plastic

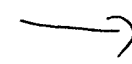


Present invention protective tarp 1 of Figure 1 is shown to cover a log pile 10 but could be used for covering any mass, such as a motorcycle, lawn furniture, sand piles, swing sets, or outdoor construction projects in progress. While Figure 1 shows the tank compartment anchors 13 and 15 to run the entire length of edges 9 and 11, this is not required, in many embodiments, there will be a plurality of tank compartment anchors along a single edge.

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Figure 2 shows a present invention protective tarp 20 which has a

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flat flexible sheet material 21 forming ^{its} it's central portion and made of flat flexible material and has edges 23, 25, 27, and 29. In this

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embodiment, there are tank compartment anchors along all four edges so that the tarp may be more close ended. Edge 23 includes tank compartment anchors 31, 33, 35, 37, and 39 while opposite edge 25 includes tank compartment anchors, 41, 43, 45, 47, and 49. Ends 27 and 29 include tank compartment anchors 51 and 53.

While present invention protective tarp 20 of Figure 2 has a plurality of tank compartment anchors rather than a single continuous tank compartment anchor, for shorter versions single tank compartment anchors along an edge could be used. However, separate small tank compartment anchors are preferred for a number of reasons. Among these reasons:

- the ability to empty one or more compartments to satisfy anchoring requirements for specific applications
- the need to prevent massive fluid weight shifts when the tarp is being moved

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- the ability to flatten out, fold, or shorten the functional length of the tarp
- containment and minimization of leaks

In Figure 3, a circular present invention protective tarp 60 is shown. There is a singular, continuous peripheral edge 61 to central portion flexible sheet material 63, as shown. There are four attached tank compartment anchors 65, 67, 69, and 71 located symmetrically around the edge 61 while protective tarp 60 is shown as circular, the flat sheet material 63 could be formed or stitched so as to be conical and to therefore efficiently protect piles of granular material such as road salt or sand. In this particular embodiment, there is also a relatively large, TM Velcro sealed flap 73, which will enable a user to open the flap and remove the granular material therefrom.

Figure 4 shows a top view of a generally rectangular present invention top 80. It includes side edges 81, 83, 85, and 87. All of these edges contain a plurality of tank compartment anchors. Thus, edge 81

includes tank compartment anchors 91, 93, and 95; edge 83 contains tank compartment anchors 97, 99, and 101; edge 85 includes tank compartment anchors 103, 105, 107, and 109; edge 87 includes tank compartment anchors 111, 113, and 115. In addition, central portion 81 has a central area 82 with tank compartment anchors 117 and 119. These additional anchors will operate to minimize or eliminate wind lift and air pockets.

Figure 5 shows a top view of another embodiment of the present invention protective tarp wherein it has been structured for production in significant lengths wherein it may be cut from a dispensing roll to create a variety of tarps of selected lengths.

In Figure 5, present invention protective tarp 150 has side edges 163 and 167, back edge 161 and cut view front edge 165. In this embodiment, there are a plurality of central areas shown here as central areas 151, 153, 157, and 159. Along side edges 163 and 167 are a plurality of tank compartment anchors symmetrically arranged. These

are typified by tank compartment anchors 175, 177, 185, and 189 along side edge 163 and tank compartment anchors 179, 181, 183, and 187 along side 167. Back edge 161 has two tank compartment anchors 171 and 173, as shown. Between each central area are multiple sets of pairs of tank compartment anchors, each of these sets of pairs being grouped equidistantly from one another so as to define the central areas shown.

Tarp 150 of Figure 5 may come in a continuous roll form and may be cut at any point to create a tarp of any desired length. It is preferred to cut tarp 150 at locations between the pairs of tank compartment anchors that separate the various central areas. For example, cuts could be made between tank compartment anchors 191 and 193 to the left and 195 and 197 to the right. Similarly, a cut could be made between tank compartment anchors 201 and 203 on the left and 205 and 207 on the right. Alternatively, a very long tarp could be created by making a cut after tank compartment anchors 211 and 213.

Figures 6 and 7 show tarp segments 150a and 150b, respectively, to

illustrate preferred segment cuttings from tarp 150 of Figure 5. With respect to Figures 5,6, and 7, identical parts are identically numbered.

The present invention protective tarp may have its flat, sheet material aspects formed of any known sheet material, including synthetic and natural material, as well as combinations thereof. It may be in the form of mesh or woven material, film material or combinations thereof. It may be very wide meshed, or net-like, or very tightly woven, and it may be water permeable or water proof, but is preferably water proof.

The tank compartment anchors may be formed separately from the flat sheet material and may be made of the same or different materials.

Typically, however, the tank compartment anchors are made of the same materials as the flat sheet materials (with perhaps, the exception of the caps or closures), and may be integrally formed therewith. This could be accomplished in a continuous process of layered materials positioned in predetermined locations and heat-sealed to a main sheet material. The layered materials would be precut and/or preformed with a threaded or

fixed cap- receiving orifice, and heat-sealed to the flat sheet material to create a tank compartment anchor.

Obviously, numerous modification and variations of the present invention are possible in light of the above teachings. It is therefore understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

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